

AMATEUR RADIO

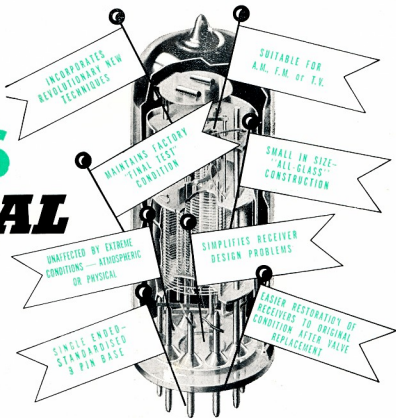
FEBRUARY

1951

JOURNAL OF THE WIRELESS INSTITUTE OF AUSTRALIA

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EDITOR:

T. D. HOGAN, VK3HX,
Telephone: UM 1732.

MANAGING EDITOR:

J. G. MARSLAND, VK3NY.

TECHNICAL EDITOR:

J. C. DUNCAN, VK3VZ.

TECHNICAL STAFF:

A. K. HEAD, VK3AKZ.
L. B. FISHER, VK3AFF.

COMPILATION:

R. W. HIGGINBOTHAM, VK3RN.

CIRCULATION:

I. K. SEWELL, VK3IK.

ADVERTISING REPRESENTATIVE FOR VICTORIA:

W. J. LEWIS,
20 Queen St., Melbourne, C.1.
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EDITORIAL

SAFETY PRECAUTIONS

A B C. You have heard of these three letters since the days of your very early youth. Now that the years have rolled on, are these first three letters of the alphabet just a dim memory or are they foremost in your mind when pursuing your hobby? If the former be the case, let us bring them to the surface and help you keep them there.

Elementary electricity and magnetism teaches us that the speed of electric and light waves travel at the speed of approximately 186,000 miles per second and in addition it is known that our reflexes work at a somewhat slower speed, therefore, it is obvious that you cannot win in a battle of electricity versus human flesh.

It has been said that by keeping your hand in your pocket you safeguard your wealth, why not safeguard your health by doing the same, when making adjustments to your transmitter.

The following alphabet gives a few pertinent points to remember:—

A—Always

B—Be

C—Careful.

D—Don't forget to short circuit high voltage filter condensers. You may have an open or no bleeder resistor.

E—Everytime you make an adjustment to your equipment see that it is DEAD or you may be.

F—Forgetfulness does not pay. Fuses do.

G—Good design will ensure the personal safety of the operator and his friends.

H—High voltage—Heed it.

I—Interlock circuits are good commercial practice. Make it yours.

J—Just think a little longer before you act.

K—Keying circuits can be lethal. Are yours?

L—Look for the green safety lights on the rig.

M—Must you test the voltage of a rig with your body? Voltmeters are cheaper.

N—Never let your mind wander from what you are doing when adjusting the transmitter.

O—Oh! How many times have you said this because of your carelessness.

P—Proud flesh! An early demise by electrocution is nothing to be proud of.

Q—Quick results are achieved when making adjustments to live equipment with both hands.

R—Red is for danger. What warning devices have you on your equipment? Can those already in existence be improved? Let the Editor have some dope on them so that your fellow Hams may derive some benefit.

S—Study your circuit diagrams carefully. You may find them to be dangerous due to wrong connections.

T—Take time off for a second look before you throw the switch in.

U—You only live once.

V—Vulnerable.

W—We are all subject to this condition when caution is thrown to the wind.

X—Exit. Will your thoughtlessness accelerate yours?

Y—Why not play safe.

Z—ZAC. The game is not worth one of these unless everybody observes safety precautions.

—Federal Executive.

Make your motto: "The ABC of Safety First is Always Be Careful."

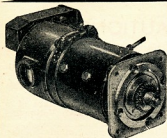
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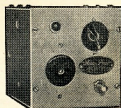


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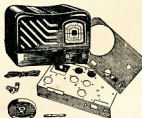
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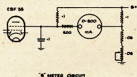
Central 4311

A Simple Ham-Band Super

BY W. R. JARDINE,* VK3PR

In "QST" for August, 1938, there was described a small three-tube superhet receiver using 6K8, 6K7 and 6C8, and operating from 6 volts for filament supply and from a 45 to 90 volt B battery. Not having any a.c. available, this hook-up appealed to the writer and the set was built up. The results were beyond expectations and the little set did yeoman service up to the start of the war.

At the cessation of hostilities it was found that the B batteries were flat (not to be wondered at) and it was decided to build something larger that would work from a vibrator unit and at the same time be suitable for operation from the a.c. mains when the long overdue a.c. arrived.



About this time the 10th edition of the Radio Handbook came to hand wherein there was a five-tube receiver described using this system and it was decided to build the set along these lines and to follow their layout.

From the outset it was decided to use plug-in coils as these were the simplest to get going and in the writer's opinion the most efficient.

Let us take the circuit stage by stage. In the r.f. stage a EF50 is used. It was originally intended to use a 6K7 or 6SK7, but it was thought that the EF50 would be the best bet so it went in and there it stayed. A 6K8 was used in the original three-tube set, but the ECH35 looked better on paper so it was included. The manufacturer's recommendation to plate tune the oscillator coil was adhered to and it works very well. The X61M has also been used in this position without any alterations to the circuit and the results are as good as, if not better than, the ECH35.

It was decided to stick to 455 Kc. i.f. stage to get a reasonable amount of selectivity and gain the one stage. After much thought, it was decided to use a EBF35 in this stage and use one of the diode plates for a.v.c. The a.v.c. circuit is quite simple and works efficiently.

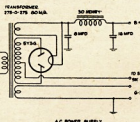
The second detector and b.f.o. created no problem as the 6C8G had performed quite well in this position in the previous set, hence it was retained. It is

necessary to bring the grid lead from the 2nd i.f.t. out the top of the can and use the first section of the 6C8 as the detector and the other section for the b.f.o. There is enough coupling inside the tube to give a good b.f.o. note. The b.f.o. coils are an old air core 455 Kc. i.f.t. with the trimmer across one winding (the plate) removed. A two-plate midget condenser is connected across the grid winding to vary the beat note from the front panel.

A 6V8G was the obvious choice for the audio stage and needs no comment, except to say that no provision has been made for headphones as the author does not use them.

It will be noticed in the circuit that a i.f. gain control has been included. This was not found necessary in the writer's set and was never used especially as later on an S meter was included in this stage and the gain control only upset the meter adjustment. The r.f. gain control was found quite satisfactory for controlling strong local signals.

The original set was constructed on a 13 1/2" x 7" x 2 1/2" aluminium chassis and the front panel is 14" x 10" masonite. The sketches will give an idea of the chassis and front panel layout. There is an aluminium shield on the back of the panel between it and the oscillator bandspread tuning condenser to cut out hand capacity. The r.f. and mixer tubes and coils are enclosed in an aluminium

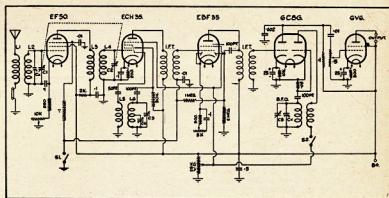


S Meter Circuit.

This circuit is suitable for any receiver using 6K7 or any similar tube in a.v.c. controlled i.f. stage.

A.C. Power Supply

Four-pin plug on power supply to four-pin socket on back of Receiver.



C1, C2—50 pF. variable, ganged.
C3—0.0001 uF. variable.
C4—35 pF. variable.

C5—2 plate variable.
Cx—see coil table.

DETAILS OF COILS FOR 80, 40 AND 20 METRES

	L1 and L3	L2 and L4	
80 Metres	9 turns	45 turns on 1 1/2" ribbed former, close wound.	
40 Metres	6 turns	22 turns on valve base, close wound.	
20 Metres	4 turns	10 turns on valve base, close wound.	
Spacing between L1 and L2, and L3 and L4, 1/4".			
Cx is mica trimmer taken from i.f.t. (later used as b.c.o. coil) and placed across L2 on the 80 metre coil only.			
	L5	L6	Tap
80 Metres	7 turns	19 turns	top of coil
40 Metres	5 turns	15 turns	7 turns
20 Metres	4 turns	5 turns	3 turns
All windings with 22 gauge enamel wire.			

The circuit of the little set was studied and it was decided to add r.f. and a.f. stages. This would make a five-tube receiver which would not be too heavy on the vibrator unit available—a FS6 unit—and as there was no trouble in keeping a 6 volt battery charged, the job was put under way.

It was decided to make use of the latest tubes available and to include a.v.c. The next problem was the tuning of the aerial, r.f. and oscillator circuits. The idea of gang tuning appealed to the writer, but the work of coil trimming, etc., to get the stages to track properly did not, so it was decided to compromise and to gang the r.f. and detector and separately tune the oscillator.

* Box 52, Leongatha, Victoria.

box and separated from each other with a piece of aluminium the same height as the rest of the shielding which is $\frac{1}{4}$ " high. No lid is used on the top of the box.

Condensers C1 and C2 are ganged together and mounted under the chassis close to their respective coil sockets, while C3 is also mounted under the chassis at the oscillator coil socket and a flexible extension shaft goes to the front panel for band-setting. With the coils in use in the original set the band-set condenser peaks the centre of the band at about 60 degrees on a 100 degrees scale and if the set is required for Ham band use only, it is suggested that the coils be well doped so that the

As stated previously, the set works quite well from a 6 volt accumulator and FS6 or similar vibrator unit, or it can be operated from an a.c. power pack delivering 250 volts at about 80 Ma. The power supply is built on a separate chassis.

The tuning is quite simple and once each band is found, it will be noticed that C1 and C2 will peak when tuned with C4. On 40 and 20 metres, these condensers can be left set in the middle of the band, but on 80 metres it is necessary to follow up with these condensers to some extent.

If a 6K7 or 6SK7GT is used in the r.f. stage in place of the EF50 it will be necessary to take the screen voltage from the 100 volt tap on the voltage divider.

The results from the little set far exceeded all expectations. The set was on loan to a local Ham for some months and he reported that its performance astounded him.

It is suggested to anyone building this set that they use a larger chassis with a view of further expansion at a later date.

The Present Phase of the Solar Cycle

BY L. L. BRENNAN,* VK2AMU

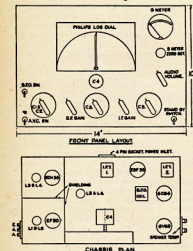
The time of the last sunspot maximum was 1947.5. Although this was three years ago, sunspot activity has remained at a relatively high level. It has decreased by approximately one third since maximum. As can be seen in the diagram, maxima have been alternately high and low since 1850. If this alternation had continued, the maximum of 1947 would have been lower than the high one of 1947. The maximum of 1947, however, did not follow this rule, but proved to be the highest ($N=152$) since 1778 (N154.4). It was approached only by the maxima of 1837 ($N=138.3$) and 1870 ($N=139.1$).

The average latitude of spot groups decreases steadily from approximately 25° at the beginning of a new cycle to about 5° at the end of the cycle. At maximum the average latitude is about 15° . The latitude of sunspots during the present cycle has decreased at the expected rate, being 17.3° in 1947, 14.3° in 1948, and 13.4° in 1949. The relatively high average latitude at maximum was due to the early occurrence of max-

imum in the cycle. If the two hemispheres are considered separately, a difference of two years between northern maximum and southern maximum is found in the present cycle, the southern maximum having occurred in 1947. The northern belt maximum occurred in 1949 and the greater activity has remained there to date. Higher latitude groups of the new cycle may be in evidence during the latter part of 1952 or early in 1953.

The time of the next sunspot minimum can be estimated only from the average length of the cycle (11.2 years) and the average time from maximum to minimum. A provisional forecast by the "American Association Variable Star Observers Solar Division" for the next minimum is set for the period between 1954.6 to 1955.3.

Professor W. Gleissberg, Director of the University Observatory at Bayazıt, Istanbul, Turkey, has forecast with a probability of 19-1, that solar activity at the coming minimum will be stronger than that of all minimum since 1843.



Accurate Frequency Transmissions for 1951 from VK3WI

During last year, four Accurate Frequency Transmissions were made from VK3IK, representing VK3WI. These transmissions were made possible with the help of the Frequency Measuring Station at Mont Park, and the thanks of the Victorian Division are hereby extended to those boys at that Centre.

To fit in with their long list of activities, it has been decided to change the month of operation for the transmissions.

Dates for the next twelve months are as follows:—

Thursday, 22nd February, on the 7 Mc. band.

Thursday, 24th May, on the 3.5 Mc. band.

Thursday, 23rd August, on the 3.5 Mc. band.

Thursday, 22nd November, on the 7 Mc. band.

It will be observed that two of the transmissions will be on the 80 metre band. This procedure was thought advisable as this band should give complete coverage over the State, and the QRN should be less at that time of the year.

Transmissions take place on the 7 Mc. band at intervals of 20 Kc., whilst on the 3.5 Mc. band, the intervals of 30 Kc. will be taken.

The operating procedure and times of transmissions are as follows: 9.5 p.m.,

phone transmission on 7196 Kc., with a general call, and information on what is about to take place. 9.15 p.m., VK3WI changes frequency to 7000 Kc. and calls as follows on c.w. at 12 w.p.m. "AFT (three times), DE VK3WI (three times), then — — — — — QRG — — — — — 7000 Kc. (twice)." The key is then held down for one minute, then "QSY 7020 Kc. (twice), DE VK3WI (once), AR."

The transmitter then commences operation on 7020 Kc. and the procedure is repeated until 7200 Kc. is reached, after which there will be a phone transmission on 7196 Kc. and if corrections are immediately available, they will be broadcast at this time, also on the following Sunday broadcast over VK3WI.

The 80 metre transmissions will be the same as the former, only the voice will call on 3598 Kc. and then the checks will start on 3.5 Kc. and finish on 3.8 Kc., with the exception that the checks will be given every 30 Kc.

If the hour is not too late, frequency checks will be made for any member contacting VK3WI.

— . . . —

ANOTHER TYPE 3 MK. II MODIFICATION

When attempting to use the ZB2 as a converter in conjunction with the Type 3 Receiver and supplying it from the Type 3 power pack, it was observed that

when the ZB2 drew current the sensitivity of the Type 3 receiver dropped off sharply; so much, in fact, as to render it almost useless for reception of any but the strongest of signals. A study of the circuits with particular reference to the biasing arrangements, soon revealed the reason for this and enabled a simple cure to be effected.

A system of back biasing is used. A 500 ohm resistor in the power pack through which all current drawn by the receiver and ZB2 must flow, produces, normally, about 12.5 volts bias which is applied to the various stages by means of a suitable voltage dividing network. When the ZB2 draws current, this voltage increases to more than 15 and the consequent result is more negative bias on the tubes and less gain. In order to keep this voltage down to about 12.5 the ZB2 is being used, a resistor is connected in parallel with the 500 ohm back biasing resistor. It was found more convenient to mount this resistor in the receiver rather than in the power pack as it was also necessary to mount a switch to enable it to be cut out of the circuit when the ZB2 was not in use.

This switch, a single pole single throw toggle, is mounted above the b.f.o. control knob and wired so that, when closed, a resistor of 750 ohms is connected across the negative bias supply. 750 ohms is really a bit low as the bias voltage with the ZB2 in use drops to about 10 or 11, but it was the only resistor available that approached the correct value and the slightly lower bias voltage has restored some of the sensitivity lost by the receiver due, apparently, to ageing of the tubes.—VK3JO.

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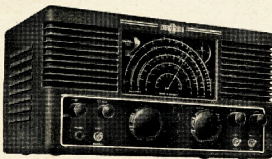
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PREMODULATION CLIPPING AND FILTERING

Their Effects on the Intelligibility of Speech

Over the past ten years, radio journals have published extensively on amplitude and frequency limiting speech amplifiers. The fundamental purpose of such equipment has been the improvement of transmission efficiency in radiophone transmitters, by permitting only the frequencies essential to speech to modulate the transmitter, and by maintaining the highest average proportion of modulation possible without exceeding the transmitter's linear capability. The principal devices recommended have used volume compressors, limiters, clippers, or automatic gain-control networks, and usually incorporate frequency filters which eliminate all but the band occupied by typical speech.

The physics and economics of these amplitude and frequency restricting amplifiers have apparently been generally accepted. However, there seems to have been a good deal of unwillingness to employ them, regardless of their technical advantages, on the ground that they so distort the natural voice as to jeopardize intelligibility. This argument does not square with the results of some recent experiments designed to study exactly this problem.

How do clipping and filtering affect speech intelligibility? Indicative of this work was an article published about four years ago in "QST" (Feb. 1946, p. 46). Several others have appeared in the engineering and scientific literature which are worth the Amateur phone man's consideration. This paper will undertake a review of these articles, and attempt to demonstrate the usefulness of their results.

First, let us refresh our knowledge of the dynamics of speech. When the human voice is impressed upon a microphone, voltages are set up whose instantaneous peaks normally exceed the root-mean-square value by 12 to 15 db. It is this "peak factor" which requires us to design our amplifiers with a much greater range of linear amplification than we expect to use most of the time, when we wish to transmit voice signals with minimum distortion. Also, in English as we speak it, the average vowel produces a peak voltage which runs about 12 db. higher than that produced by the average consonant. This 12 db. figure is the average vowel consonant ratio for all combinations of sounds in our language; the instantaneous value may vary from a fraction of the average to several times its magnitude. Now, peculiarly enough, the intelligibility of speech depends much more heavily upon sounding of consonants (b, p, z, s, t, d, f, v, th, k, l, m, n, etc.) than upon vowels (a, e, i, o, u, y, etc.), despite the fact that the ordinary vowel sound has around 16 times the power of the usual consonant.

EFFECTS OF CLIPPING ON INTELLIGIBILITY

From the foregoing, we can immediately see what happens when the peaks are clipped from the speech wave. At one and the same time we reduce (1) the peak factor, and (2) the vowel-to-

consonant ratio. Effectively, we have cut down the range of variation in speech-energy amplitude, and in so doing have given proportionally greater emphasis to consonants, upon which intelligibility largely depends, as we have seen.

This would lead us to expect that we might improve intelligibility by the use of clipping. There is, on the other hand, the possibility that the distortion of amplitudes resulting from peak clipping might actually reduce intelligibility. This is the gist of the question for which answers have been sought in the psychological laboratory, using some techniques of measurement which have become standard in studying voice communication.

Some years ago the Bell Telephone Laboratories devised tests to measure the effects of telephone circuits on the intelligibility of speech. A talker would read lists of syllables or words made up of all the sounds of the English language, in various combinations. His voice was then transmitted over a telephone circuit to a group of listeners who would write down what they thought the talker had said. By comparing the talker's original list with the listeners' reproductions of it, a percentage could be computed representing the proportion of spoken sounds correctly received by the listeners, as circuit conditions were systematically changed by introducing various degrees of filtering, attenuation, non-linear amplification and the like.

EXTRACT FROM "QST" NOVEMBER, 1950

In World War II, this method was applied, by a group of psychologists at the Harvard University Psycho-Acoustic Laboratory, to a study of the effects of premodulation clipping upon the intelligibility of speech transmitted over a miniature radiophone circuit, using standard amplitude modulation. The results of this testing showed that in the absence of QRN, when extremely weak unclipped signals were only about 30% intelligible, using 24 db. of clipping would raise intelligibility to 75%. These percentages represent intelligibility of words on the special lists; the equivalent in connected meaningful sentences may be higher. Such an advantage in favor of clipping also holds when QRN is very heavy, to almost the same degree.

Listeners in these experiments were asked to report on change of voice quality as clipping increased. Here is their average opinion: at 0 db. clipping, natural voice; 6 db., clipping effects barely noticeable (comparable with standard broadcast quality); 12 db., talker appeared to be enunciating with unusual force; 18 db., voice took on a sharp "sandy" character, quality rated not as good as before; 24 db., voice was coarse and "grainy," rated as poor. Note, however, that despite the very evident changes in voice quality, intelligibility actually improved, particularly when conditions were less than optimal. This

effect has been noted before, although perhaps not so explicitly documented.

The question arises, "What about the effects of clipping on intelligibility when conditions are nearly perfect?" The most definitive answer available comes from another series of experiments. With 0 db. clipping, signals were 100% intelligible; as clipping was increased, intelligibility fell off slightly until at 20 db. clipping it had reached 96%. Clipping was gradually advanced, and at 100 db. (almost all speech peaks flattened to rectangles), intelligibility had fallen to 75%. (This, remember, under ideal conditions of quiet for both talker and listeners, with no fading or interference.) Incidentally, these experiments revealed that with signal-noise conditions which completely obscured unclipped speech (intelligibility at 0% to 10%), the same signal when clipped 100 db. and over was 30% intelligible. In these experiments, nothing was said about changes in quality; it could be expected, however, that with such severe clipping as 100 db. it would be very hard to identify the talker by the distinctive sound of his voice.

EFFECTS OF FILTERING ON INTELLIGIBILITY

Up to this point, we have discussed speech in terms of its gross amplitudes only, without considering the individual frequencies present in spoken language. For reasons dictated by engineering standards, several recent amplifier designs ("QST," Feb. 1949, p. 11; "Ham News," 4, 8, May-June, 1950; "QST," July, 1950, p. 50; "Amateur Radio," Jan. 1951, p. 4) have included both high and low pass filtering. Since this practice is becoming more widespread, let us examine its effect on intelligibility.

This matter has also been investigated in the psychological laboratory, under conditions comparable with those found in the Amateur phone bands. Using the same testing procedures as in the study of clipping effects, a talker's voice was transmitted over a wire circuit to a group of listeners. The speech was subjected to various degrees of filtering and attenuation, and was then combined with an unfiltered constant intensity thermal noise, simulating QRN and led to the listeners' headphones. At no time was peak clipping permitted to occur; thus the effects of filtering alone could be evaluated. One series of experiments, studying changes of intelligibility at various signal levels and signal-noise ratios when either high or low frequencies were separately filtered out, showed that when everything below 350 cycles was cut off, intelligibility of moderately to very strong signals was slightly improved by comparison with unfiltered signals. However, at the lower signal levels, where QRN presumably was more disturbing, intelligibility suffered some loss as a result of such filtering. Extremely weak signals in noise were 5% intelligible when the 350 cycle high-pass filter was in the circuit, but jumped to 25% when the filter was switched out, although signal

strength and noise level remained unchanged.

It was further found that when signals were strong and in the clear, everything up to 580 cycles could be cut off with little damage to intelligibility. As to cutting off the highs, when everything above 3950 cycles was eliminated, there followed very little reduction of intelligibility regardless of signal strength. However, when the cut-off point was moved down to 2500 cycles, results were quite different. When signals were strong and clear, intelligibility was down to 48% with the filter in, as compared to 90% with no filter. As signals grew weaker, the proportional loss of intelligibility due to filtering diminished somewhat, although even at the lowest signal level used in the tests, the 2500 cycle low-pass filter hampered intelligibility appreciably.

We may now ask, "What happens to intelligibility when we filter off both highs and lows at the same time?" The effects of bandpass filtering on speech in a noise background have been separately investigated. As before, unfiltered constant-intensity noise was superimposed upon the filtered speech signal, which was also varied in strength to secure various signal/noise ratios. As might be expected from the discussion of high and low-pass filtering, greatest intelligibility at all signal strengths resulted when the widest passband was used (130-9200 cycles, intelligibility about 90%). The effects of filtering upon intelligibility were most noticeable, as before, when signals were strong and relative noise level was low. Interestingly enough, at all signal levels, the passbands 340-3900 cycles and 550-3900 cycles produced almost identical effects on intelligibility; actually, neither one seriously impaired intelligibility when compared with the widest passband. However, shifting the cut-off points to ward each other clearly resulted in poorer intelligibility, as the following table shows. Signal strength and signal/noise ratio are the same for all filter combinations.

Passband Limits	Intelligibility
130-9200 cycles	90%
340-3900 "	80%
550-3900 "	80%
550-2500 "	70%
870-3900 "	65%
870-2500 "	55%

SUMMARY

1. Speech clipping definitely improves intelligibility.

2. As signals get weaker, and as signal/noise ratio gets worse, the greater the clipping, the greater the improvement of intelligibility, up to at least 24 db. of clipping.

3. Extremely heavy clipping (100 db. or more) is beneficial under very severe signal/noise conditions, although it will not make poor signals completely understandable.

4. Although the quality of speech changes noticeably over the clipping range from 0 db. to 24 db. (and probably above), even under the best signal conditions intelligibility is not impaired by clipping.

5. In general, high-pass filtering up to 350 cycles will not harm intelligibility, and may actually make a slight improvement when signals are strong and clear.

6. Under optimum signal conditions, frequencies below 580 cycles may be eliminated with little loss of intelligibility.

7. Cutting off frequencies above 3900 cycles by use of a low-pass filter will have hardly any effect on intelligibility.

8. Cutting off frequencies above 2500 cycles will seriously impair intelligibility.

CONCLUSIONS

We may conclude, therefore, that the engineering advantages obtained from speech clipping prior to modulation are accompanied by definite improvement of intelligibility at the receiving end of a radio circuit, especially under adverse operating conditions. Further, the change in voice quality noted as a by-product of clipping does not really impair intelligibility of the signal; speech can be distorted very severely by non-linear transmission and still be perfectly understandable. Filtering to avoid or remove the undesirable side effects of clipping will not impair the intelligibility of speech until the upper cut-off frequency gets down around 2500 cycles. In fact, filtering off the low frequencies (below 350) may actually improve intelligibility under good signal conditions. The limit for cutting off low frequencies is apparently much less critical than for high frequencies; any cut-off point up to almost 600 cycles may serve for the lows with little damage to intelligibility, while for the highs cut-off should be well above 2500. It appears now that the more or less arbitrary low-pass cut-off of 3000 cycles now rather widely employed may be a little too slow for optimum communication. This last observation assumes, of course, that the frequencies above nominal cut-off are abruptly and completely attenuated. It may very well be that intelligibility would not suffer so seriously were the frequencies above, say, 2000 cycles subjected to the relatively gentle treatment of the typical RC network, i.e., 3 to 6 db. attenuation per octave.

A ZERO BEAT INDICATOR

It is very handy to have an exact zero beat indicator when matching two r.f. signals. They can be matched on a c.r.o., but few have the facilities for doing that. If the signals are strong enough, you can hear the swish in your receiver or watch the S meter swing.

In these cases all is easy, but more commonly the signals are not strong enough to allow of such obvious and easy measures. A very easy, exact and almost universally obtainable method is in one's own receiver.

The method is to beat the two signals until there is no audible note. In that position the frequencies are, we will say, within ± 50 cycles. If now you turn on your b.f.o. to give a note of about 1,000 cycles, you can beat the two signals very easily to within a cycle a second. As you approach the point of exact zero beat, the 1,000 cycle will vary according to the difference between the two r.f. signals. The effect is very marked and is just as obvious on weak as strong signals.

It is an effect with which those who match audio frequencies exactly are familiar. You can use any frequency of note from your b.f.o. that you like. The whole system is extremely simple and very accurate.

There is only one point to watch—that is that you don't zero one of the r.f. signals with your b.f.o. For that reason it is best not to turn your b.f.o. on until you have got to the point of no audible note.

A fundamental point in matching r.f. signals, but one that will bear repeating, is that varying the tuning of the receiver does not vary the beat note from two outside signals. If the beat note does vary, one of the incoming signals is beating against the oscillator in your receiver. This is exemplified when tuning in a single station on a receiver and when tuning across two stations who are heterodyning one another.

—Dr. Leo H. McMahon, VK2AC.

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DX NOTES BY VK4QL

Well, up here I find I am still digging down in the noise and hash to see what DX is to be found. What has been there has not been strong, and it has been found at unexpected times in some cases. Static on 14 Mc. has been what I would normally expect to find on 3.5 Mc. and occasionally 7 Mc. in Sydney. Some peculiar effects have been noticed with the static. It would be very severe, but there would be some signals on the band even if only Pacific or Asian. Within a short space of time the noise level would drop considerably and the signals would also disappear, causing one to check his receiver for serviceability. But the receiver would be OK and next day the noise would be there as usual. Once again a big change took place on the 14 Mc. band during the month. In the beginning round 6 a.m., North and Central Americans together with North and West Africans were workable, but they were non-existent at the end of the month. I believe the Southern VKs heard me working the Africans but they could hear no sign of them.

14 Mc. has been pretty useless for late except after midnight and up to 3 a.m. Have had only one or two sessions at that time so cannot give a consistent report. But with the poor conditions, if you are lucky enough to be around at

the right time, there are some good pickings.

One morning recently when the 14 Mc. band was flat, I played a hunch, and braved the QRN and went to 7 Mc. to find the band flat of DX, including the North West Africans which I had been working on 14 Mc., such as FF8JC and CR5AC. The thing I was crook on was how many days it had been open before I went there. The opening only lasted four days. Stations worked in that period were SP1CM, FA8RJ, SM7IA, HA4AS, DL1CS, U5BBH, FF8JC, CR5AC, while others were heard there.

Evenings on 7 Mc. have been hopeless due to the high noise level, and in any case I could only hear one or two weak W and ZL signals. 3.5 Mc. was listened to once or twice but the noise was terrific, but even through it W5ATW was heard at 10 p.m. one night.

Was all set for a CQ from VP3SW on 14 Mc. one night, when an extensive power failure occurred, so I don't know what happened, but guess plenty were after that one. The strong Interstate signals which were heard last month on 14 Mc. have dropped right off and are very unsteady now.

A strange coincidence occurred the morning I worked FF8JC and CR5AC on 7 Mc. Their QSLs for 14 Mc. contacts arrived in the morning's mail.

Last month I mentioned the call of MGBNI. Well, it's derivation is called by the operator using the ship's call sign and adding the letter 1 to it, which, the op. sez., is in accordance with current regulations. Port of registry was in India.

FZ6R was always a good band marker on 14 Mc., being 2 Kc. outside the band. Now, however, he has moved into the band, and for the whole of the month has been on between 14004 and 14006 Kc., varying from time to time. As if that was not enough, he has had two bad parasites which were very broad and rough.

Two points of interest this month come from ON4QF and KP4KB. ON4QF said he will probably be going to Andorra this spring. His plans to do it last spring were prevented by red tape he said. Wants the VKs to keep an ear open for him; who won't be. KP4KB, operating KP4HU worked VK5LE the long way round on 7 Mc. at 0715 E.S.T. on 22nd Dec. I had heard KP4KB two days before, but had to QRT before had a go at him. This was during the period of opening I mentioned earlier.

A number of stations have appeared on the band this month using the HS prefix, so another difficult one has a few more starters. HS1VR wanders all over the place during his transmissions, often under a commercial.

VR1F has supplied the following on all existing VR1 stations:-

VR1A, Chas Adams, at Tarawa.
VR1B, Stan Silver, at Tarawa.
VR1C, uses number of ops., at Tarawa.
VR1D, Des Walcott, at Bairiki.
VR1E, Ted Lamont, at Canton.
VR1F, at Canton (see last month's notes).

Don also says there are nine KB6 licenced, but not very active.

The rarer prefixes for the month show some interesting ones. 14 Mc.: ZC4AN, ZDIAR, ZD2DYM (Nigeria Signals Squadron, Lagos), ZD2LO, ZD6HJ, CR4AH, CR5AC, CR5AD (Box 200, Bissau), OQ5LL (Box 4129, Leopoldville), FF8AC (Box 19, Port Etienne), FF8GP, FF8JC, FM7WF, FQ8AC, FY8AC (Cayenne, F.G.), KC8WD, CGLB (C.S. Depot, Box 3, Navy 926 F.P.O., Frisco), VP3CW, VP4TB (21 Edward St., Port of Spain), EQ3FM, YS10 (Box 329, San Salvador City), AI2Z, SP5B, VQ8CB, C3CL (Box 1, Tanchu, Taiwan), M3FC (Box 513, Asmara), VP7NH, CP5EK (Box 496, Cocahamba), KG4AD (Box 35, Navy 115, F.P.O., New York), PJ5OK, CP5EQ, UG6AB, UG6AH, IIMV/Trieste, YI3BZL (QSL via G3BZL). In addition to those worked at the 7 Mc. opening, these were heard: KP4KD, HB9IN, ON4ZJ, UB5KAA, UB5BZ, CN8MZ, DL4CR, 4X4CF, CR7IZ, IILI, IIAK, IIAIV, FA8BG, YUICAG, OK1SK and a few ZS. All between 6 and 7.30 a.m.

QSLs for the month: V06A, VP5FR, FF8JC, CR5AC, NY1AA, TA3AA, HA4AS, FM7WF, FN8AD.

Would like to know from 3RJ if any QSLs have been sighted from HC8GRG to date. According to "QST" they have been sent so am wondering if this is another I miss out on; eight months since the contact.

Have a few doings from some of the gang this month including Eric Trebilcock, who took pity on me, when my appeals for dope from transmitting members get negative results. Many thanks fellas. Eric says he has qualified for his H.A.Z., by receiving a QSL from AC4YN, but it took from 1946 to get it, so one never knows when that much needed QSL may turn up. Has received some interesting QSLs, such as ZY3GO, ST2FC, IS1EHM, CR6AI, IIRIC (Trieste), and also VP2AD and EA8BC. Trebilcock may be going to do a swap for something Eric needs. His heard list for this month on 7 Mc. includes ZS7D and four Ws the long way round, which confirms something which I thought I must have misheard previously. 2DG won the jackpot one afternoon. Had heard a few ZS stations coming through on 14 Mc., so called a CQ ZS and of all people ZS3K answered him. Keith has also been hearing and working stuff like P9QW/FC, CT3AN, YI3CU. Also finds that 7 Mc. is a band well worth watching. Alan, 3CX, has now reached a total of 138, by hooking AP5B and KC6WC. As I am also 138, have challenged him to reach 150 worked first. Has now worked all his countries for the W.A.P. Award, so we are both waiting for the total QSLs necessary. 5BY has 185 countries up, whilst 2ACX has 212 worked and 200 confirmed. 2HZ occasionally manages to open the cupboard and let the light of day on his gear. One opening produced a QSO with YS10, his first new country for 20 months and the total of 172. Is very pleased, as he now has his W.A.Z. certificate. This makes us wonder where AC4YN is, these troublesome days in Tibet. 2JP requires three more for his phone DX C.C.

Well blokes that about winds up the issue for this month. Ham Radio commercialised was noticed the other day.

DX C.C. LISTING

PHONE

Call	No.	Ctr.	Call	No.	Ctr.
VK3JD	6	188	VK3AW	14	112
VK3EE	10	148	VK3AWW	14	112
VK6RU	2	141	VK4WJ	17	104
VK3CN	2	141	VK4WJ	17	104
VK6RW	4	40	VK4AB	13	102
VK4AS	9	135	VK4WF	16	101
VK6DD	6	126	VK3GG	18	100
VK3E	11	125	VK3IG	5	100
VK4HR	12	122	VK3JE	7	100

CW

Call	No.	Ctr.	Call	No.	Ctr.
VK3JZ	6	188	VK4DO	20	113
VK3FH	15	155	VK7LZ	17	112
VK3EO	2	161	VK3JE	21	108
VK3EL	2	161	VK4RO	13	107
VK4EL	2	160	VK3GW	16	107
VK3QL	5	141	VK3YD	27	105
VK3VW	4	140	VK5BO	33	105
VK3E	12	138	VK3E	23	105
VK6SA	28	136	VK3JI	25	104
VK4HR	8	131	VK3YO	34	103
VK6RU	18	128	VK4FZ	29	102
VK4RF	11	125	VK3APA	14	101
VK3EK	3	122	VK3NO	19	101
VK3RX	23	119	VK3CK	26	101
VK3E	12	116	VK3E	23	100
VK3AX	30	114	VK7RK	22	100
VK4DA	7	118	VK7LJ	24	100

OPEN

Call	No.	Ctr.	Call	No.	Ctr.
VK3BZ	4	202	VK3JA	43	114
VK6RU	8	176	VK3ADT	14	113
VK3E	7	167	VK4BT	24	110
VK4HR	7	167	VK3BZ	24	110
VK3HG	3	166	VK3BT	41	110
VK6RW	13	161	VK4WF	40	109
VK3DI	2	160	VK3ZG	25	108
VK3JE	12	154	VK2YL	11	106
VK4EL	10	160	VK3JI	33	105
VK3E	24	149	VK4WN	35	105
VK4DO	15	140	VK3VN	18	104
VK3MC	5	139	VK4UL	27	104
VK3OP	12	137	VK3E	23	103
VK6DD	22	136	VK7BZ	30	103
VK2ADE	28	133	VK2TI	37	103
VK2AHA	9	128	VK3HO	38	103
VK3LN	29	128	VK3DX	43	103
VK2AHM	20	125	VK7RK	31	102
VK2NS	16	123	VK4TY	35	102
VK4FZ	11	119	VK3CK	26	102
VK7LZ	23	116	VK2TG	39	100
VK3FL	26	116			

HC1JW was on using 2kw., yes two is right, and a rhombic.

J stations are not now permitted to operate on 7 Mc.

● The thought for the month. You can still use cheap postage rates if you get the energy to send me some "gen." Penny only for surface mail, and fourpence for air mail.

7 Mc. ACTIVITY BY VK5JE

In South Australia conditions on 7 Mc. have been very patchy, very few DX stations are coming through at night, and only two or three W stations are workable. However Asiatic stations are heard almost every night and the following have been recently worked: VS7NG, UA8ROB, MX1AP, who gives QTH as 250 miles east of Mukden, DUIMB who is on every night on about 7065 Kc. from 10.30 p.m. EST. Also the following KVAU, VK8AH, VK8OM, W1FAX/KW (Wake Is.) who puts in a ss.9 signal. Europeans can be heard for a brief period around 6.30 p.m. EST, but are hard

to contact. The following have appeared recently: PA0BS, F8N3 and a few G's.

Early morning rising is met with mixed results but no morning realised contacts with Y08PF, HB9AU, DL8SD and DL7AA, 19th Dec. at 4 a.m. revealed conditions that could well be mistaken for 14 Mc. the band being alive with strong Europeans. The following were snatched up: G2APV, GAAZ, JA8FE, G5DQ, HB0KV, YUICAG (Belgrade), choice ones, but the medium ones were SM7LA, SP1CM, OH8XT, CT1IM, and F88BG working VK1QL. The DX continued coming through until 7 a.m. EST. However a weak later a listen at 5 a.m. only revealed a few stations breaking through and F8NBW was worked and CT1ID heard. The writer finds it hard to rise early but thinks that the younger chaps ought to be a bit more enthusiastic—after all 25 years is a long time to keep THAT enthusiasm, hi.

VK1JW, Macquarie Is., often pops up on about 7065 Kc. and gives the writer his 49th county on this band. South Americans are rarely heard although numerous Cuban stations like CO8RH, CU02E, etc., and Canal Zone stations are heard. A newcomer to the band wants to listen for weak phone carriers on his intended frequency as fruitless Q's have revealed the fact that Central American phone stations are causing much QRM in the States on the low frequency end. A few culprits in VK please note! The stations just outside the low frequency end of 7 Mc. band, signaling A1A, are Army stations in Japan and once again they are not allowed to work Amateurs. A DU station in Manila, although contacted four times, always says near the end of the QSO that a ham is existing and is not allowed to contact me!

VS7NX appeared on this band and was worked on the 31st Dec. A commutation was caused by the appearance of H4RD (7049 Kc.) on New Year's Day at 8 p.m. The "dog-fight" of stations trying to work him was reminiscent of 14 Mc. when a "rare" one turns up. He was heard testing Yanks. "I'm not supposed to be on the air, but what the heck! It's freezing here and I'm trying to send with thick gloves on!" He gave his home QTH as a W2. Here's hoping we hear him from his home before long.

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MODIFICATION TO AR8 RECEIVER

It will be recalled that in the AR8 receiver, the plates of V202 (m.f. converter) and V102 (h.f. mixer) are tied together and fed to the primary of the first i.f. transformer T201.

It was found that the shunting effect of the m.f. converter tube was accounting for quite a large loss of signal when operating on h.f. and on 7 Mc. this loss was measured at 12 db.

To take advantage of this extra gain and selectivity, it was decided to switch the plate circuits. Switch S102 (m.f. h.f.) was used for this function and as no spare contacts were available, the pilot lamp circuits of terminals 6, 7 and 8 were removed. The switch was reconnected with terminal 6 going to connection A4 on transformer T201, terminal 7 to the plate of V202, and terminal 8 to the plate of V102.

The pilot lamp circuits had previously been re-wired for 6v. operation. The pilot lamps being 3v. type were now connected in series and the resistor R113 deleted. Both lamps now operate continuously.

It will be seen that with this arrangement, although h.t. is removed from the plate of the tube being used, the screen is at its normal potential and while it is agreed that this is not good practice, the tubes have suffered no noticeable detrimental affects. With further rearrangement the screen potential could also be removed.

The position of the switch S102 in relation to the tubes V102 and V202 is most convenient for this modification.

Tests on 14 Mc. showed a marked improvement, especially in selectivity. This signal gain was not measured at this frequency.

—Roger Torrington, VK3TJ.

IONOSPHERIC PREDICTIONS FOR THE AMATEUR BANDS

FEBRUARY, 1951

The accompanying charts have been prepared by the Ionospheric Prediction Service of the Commonwealth Observatory. The first set of the series was published in the November, 1948, issue of this magazine together with an article explaining the nature of the forecasts and how to use them. Nine of the charts, prefixed by the letter "C" for Canberra, refer to forecasts for the South-Eastern Australian States. The remainder, prefixed by the letter "P" for Perth, are for Western Australia.

Canberra charts refer to following world zones:—

Zone	Region	Terminal
1	Western Europe	London
2	Mediterranean	Cairo
3	N-West America	San Francisco
3a	N-East America	New York
4	Central America	Barbados
5	South Africa	Capetown
6	Far East	Manila

The Perth charts are similar to those based on Canberra. No forecasts are given from Perth to Zones 22 and 24 for the current month, as chart P-22 would be essentially similar to chart P-21, while chart P-24 might be unreliable due to aural activity in high northern latitudes.

USE OF CHARTS

All that is necessary in using the charts is to select a time (G.M.T.) during which a specified Amateur band frequency is below the maximum usable frequency (M.U.F.) of the F region of the ionosphere, but above the lowest useful frequency (L.U.F.) for the desired contact. In two cases, Zones 1 and 3a it is necessary to consult both the short-route (s.r.) chart and the following long-route (l.r.) chart.

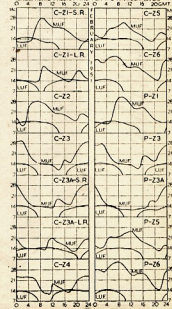
QUIZ

The Prediction Service welcomes comments on the accuracy of its predictions. In particular, answers to the following questions on the Perth-Manila circuit would be useful:—

1. Were good conditions experienced on 7 Mc. for the period 1000 to 2200 hours G.M.T.?
2. Was the 14 Mc. band workable around 2100 hours G.M.T.?
3. Was the 28 Mc. band workable from 0400 to 1000 hours G.M.T.?

Answers to the Quiz should be sent to the W.I.A. and should, if possible, refer to consistent results obtained on the majority of days in the month.

IONOSPHERIC PREDICTIONS FOR THE AMATEUR BANDS



FIFTY MEGACYCLES AND ABOVE

Compiled by J. K. RIDGWAY, VK3CR.

NEWS FLASH—VK5QR's 144 Mc. SIGNALS HEARD BY VK3RR

The expedition organised by VK3RR, and comprising Dick (3RR), VK3 SAKR, 3AGD, 3ALC, 3BV, and 3CR set itself up on top of Mt. Buangor (3250 ft.) on Sunday morning, 14th Jan. Due to numerous difficulties it was not possible to be in operation on Saturday evening, 13th Jan., as was originally intended. After setting up the gear, contact was made at 1450 hours on 40 mc. with VK5JD who was with VK5QR at Mt. Barker. Unfortunately this 40 mc. contact was badly QRM'd and copy was made very difficult at both ends. Jack informed Dick that 5QR was about to transmit on 144 Mc. c.w. on a frequency of 144.5 Mc. Upon listening on this frequency, 5QR was heard calling 3RR at R4, S3. Although many attempts were made it was not possible to make two-way contact, but it has been since learned that Reg heard a signal on 145 Mc. (3RR's frequency), but could not copy it. 5QR's signals were copied for a period of 11 hours, although QSB was exceptionally severe. Very good contacts were made with VK3GM and party (3ZL and 3HK) at Mt. Buninyong and VK3YS at Mt. Macedon.

VK2 144 Mc. CONTEST RESULTS

The results of the recent VK2 144 Mc. Contest were announced on 31st December. They were as follows: Points score (DX section)—VK2ANP 215, VK2WJ 214, VK2YM 212; Number of Contacts—VK2ANP 100, VK2HO 172, VK2WJ 166.

The contest was held in November and ran over three consecutive week-ends, with approximately 60 stations participating.

VICTORIAN V.H.F. GROUP NOTES

Group meeting night is the third Wednesday each month. All interested in v.h.f. activities, 50 Mc. and all bands higher are especially welcome. The December meeting, attended by 14 members, spent most of the evening discussing rules and regulations for field day contests. The results of the Nov., 1950, field day contest were announced; 3FD winning the section for home stations and 3EO winning the portable station section. However, as only ten logs were received and very few portable stations were active, neither winner felt that he was entitled

to the prize for his section, and both prizes will be held for the present and used for future contests arranged by the group.

Rules of Field Day Contest

1. Period of Contest. Between 1200 and 1700 hours on Sunday, 14th Jan., 1951, and the third Sundays in Feb., March, and April, 1951.

2. Contacts. Every contact made counts towards the final score with the restriction that only one contact with any one station per band per day will count unless location has been shifted at least one mile.

3. Scoring. The following system of mileage and points will apply:—

50 Mc.		288 Mc.	
0-60 miles	1 pt.	0-10 miles	1 pt.
60-90 miles	2 "	10-40 miles	2 "
90-120 miles	3 "	40-60 miles	3 "
120-400 miles	4 "	60 miles up	5 "
400-1300 miles	5 "	576 Mc.	
1300 miles up	5 "	0-5 miles	1 pt.
144 Mc.		5-10 miles	3 "
0-30 miles	1 pt.	10-15 miles	4 "
30-60 miles	2 "	15-30 miles	5 "
60-90 miles	3 "	30-60 miles	6 "
90-120 miles	4 "	60-90 miles	7 "
120 miles up	5 "	90 miles up	8 "
1215 Mc. band and up	5 "	1215 Mc. band and up	5 "

This system of scoring is the one adopted for the recent V.H.F. Marathon Contest and reference should be made to these columns of the July, 1949, issue of "A.R." wherein an explanation is given of some apparent anomalies.

4. Multipliers: 60 Mc. 1; 144 Mc. 1; 288 Mc. 2; 576 Mc. 3; 1215 Mc. and up 4. The multipliers for the various bands worked are added together and the score obtained from the mileage-points scale multiplied by this sum. Thus, if a station worked on 50 and 144 Mc. he would multiply his score by 1 plus 1, i.e., 2. If he worked on 288, 576 and 10,000 Mc. he would multiply the score by 2 plus 3 plus 4, i.e., 9.

5. There will be two sections, one for portable stations and one for fixed stations. Prizes will be allocated to the winners of each section.

6. A portable station is defined as one whose power is not obtained from either public or private

main, and whose location is at a point at least 400 m. from the home station address.

7. Logs, preferably on forms available from the Institute should show: Date, time, station worked, reports given and received, frequency band used, points claimed, estimated mileage for each contact, whether home or portable station, must be signed by the operator and should be posted to reach the Secretary of the Group by the end of each month. Any log submitted without these particulars will be ineligible. Although not necessary for the contest, it would be appreciated by the Group if logs were accompanied by a description of the gear used and by any comments or suggestions about the contest, field days and v.h.f. work generally.

8. In selecting the winners, the best three out of the four logs submitted will be used. A log should be submitted for each of the four days, except where there has been complete inactivity.

Information has been received within the last few days that TAB on 145.3 Mc. will be transmitting and listening for each alternate five minutes commencing at 1925 almost every night with the beam on VK3. The commencing and finishing dates and the time of closing down each night are unknown.

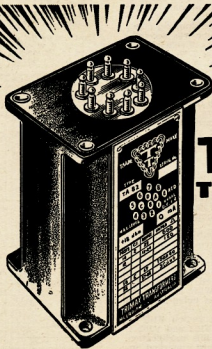
Thirteen stations on 144 Mc. in one night is at least unusual if not something of a record. They were 3BH, 3EN, 3EM, 3FO, 3CW, 3YI, 3ACH, 3BD, 3HM, 3VF, 3AKE, 3ED, 3JO.

50 Mc. ACTIVITY

NEW SOUTH WALES

The early part of the month saw the continuance of the good 50 DX conditions of late November with an excellent opening to VK5. The band then went dead for the opening of the 50 Mc. DX Contest. 144 Mc. is still trying to recover from the recent contest.

Main v.h.f. activity of the month has been confined to this band with the 50 Mc. DX Contest in full swing. After a poor opening, the Contest looked like dragging badly but the band came good with a bang on the 24th with all States being either heard or worked. The band was open for five hours. Xmas Day produced neither DX or locals! The 26th was once again a day of DX with the band open for hours to all States including VK6. The 27th produced a remarkable set of conditions with an all day opening, 89 signals and plenty of them. Some astounding totals were logged by stations participating in the Contest. The 28th was again a good day with VK5 in practically all day and ZLs plentiful during the evening.



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17th A.R.R.L. INTERNATIONAL DX COMPETITION

C.W.: Feb. 9-11 and March 9-11; Phone: Feb. 16-18 and March 16-18

RULES

1. Eligibility.—Amateurs operating fixed Amateur Stations in any and all parts of the world are invited to participate.

2. Object.—Amateurs in the continental U.S. and Canada will try to work as many Amateur Stations in other parts of the world as possible under the rules and during the contest periods.

3. Conditions of Entry.—Each entrant agrees to be bound by the provisions of this announcement, the regulations of his licensing authority, and the decisions of the A.R.R.L. Award Committee.

4. Entry Classifications.—Entry may be made in either or both the phone or c.w. sections; c.w. scores are independent of voice scores. Entries will be further classified as single- or multiple-operator stations. Single-operator stations are those at which one person performs all the operating functions. Multiple-operator stations are those obtaining assistance, such as from "spotting" or relief operators, or in keeping the station log and records.

5. Contest Periods.—There are four week-ends, each 48 hours long; two for phone work and two for c.w. The c.w. section starts at 2400 G.C.T., Friday, February 9 and Friday, March 9, ends 2400 G.C.T., Sunday, February 11 and Sunday, March 11. Phone section starts at 2400 G.C.T., Friday, February 10 and Friday, March 10, ends 2400 G.C.T., Sunday, February 18 and Sunday, March 18.

6. Valid Contacts.—In the phone section, all claimed credits must be made voice-to-voice. In the telegraph section, only c.w.-c.w. contacts count. Crossband contacts may not be counted.

7. Exchanges.—Each participating operator will use three figures to represent the approximate transmitter power input. C.w. contestants will exchange six-figure numbers, each consisting of an RST report plus the three "power" numbers. (Examples are given in the sample log.) Phone contestants will exchange five-figure numbers, each consisting of a Readability-Strength report plus the three "power" numbers. If the input power varies considerably on different bands, the "power" number should be changed accordingly.

8. Scoring.—(a) Points: 1 point is earned by a W (K) or VE/VO station upon receiving acknowledgment of a number sent, and 2 points upon acknowledging a number received. Two points are earned at any other station upon receiving acknowledgment of a number sent, and 1 point upon acknowledging a number received.

(b) Final Score: W (K) and VE/VO stations multiply total points earned under Rule 8(a) by the number of countries worked on one band plus the number of countries worked on each other band. All other stations multiply total points earned under Rule 8(a) by the sum of the number of W (K) and VE/VO licensing areas worked on

one band plus the number of W (K) and VE/VO licensing areas worked on each other band.

Countries will be those on the A.R.R.L. Countries List. There are 19 licensing areas: 10 in the United States, 9 in Canada (VO, VE1-VE9).

9. Repeat Contacts.—The same station may be worked again for additional points if the contact is made on a different frequency band. The same station may be worked again on the same band if the complete exchange for a total of three points was not made during the original contact on that band.

10. Quotas.—The maximum number of points per country per band which may be earned by W (K) stations in the c.w. section is 12, and contacts made on the same band with the same country after the quota is filled will not count. Thus complete exchanges with four stations in one country on one band fill the band quota for that country. The maximum number of points per country per band which may be earned by VE/VO stations in the c.w. section is 18, and contacts made on the same band with the same country after the quota is filled will not count. Exchanges with six stations in one country on one band are thus permitted Canadian participants. There is no quota for stations in the c.w. section outside of the U.S. and Canada. There is no quota for any station in the phone section.

11. Reporting.—Contest work must be reported as shown in the sample form. Each entry must include the signed statement as shown. (For example, Contest reports must be mailed no later than April 20, 1951, to be eligible for "QST" listing and awards. All DX Contest reports become the property of the American Radio Relay League. No contest reports can be returned.

12. Awards.—To document the performance of participants in the Seventeenth A.R.R.L. International DX Competition, a full report will be carried in "QST." In addition, special recognition will be made as follows:—

(a) Special certificates will be awarded to the phone and to the c.w. winners in each country (as shown in the A.R.R.L. Countries List) and in each of the 72 U.S. and Canadian A.R.R.L. sections from which valid entries are received. Only single-operator stations will be eligible for these awards.

(b) A suitable certificate will be awarded to the operator making the highest single-operator phone score in each A.R.R.L.-affiliated club, provided the Club Secretary submits a listing of a minimum of three phone entries by bona fide resident members of such club, and provided further that these scores are confirmed by receipt at A.R.R.L. headquarters of the individual contest logs from such

members. The highest single-operator c.w. scorer in each club will be awarded a certificate under the same conditions.

(c) A.R.R.L. will award a gavel to the affiliated club submitting the greatest aggregate phone and c.w. score by bona fide resident club members, whether single- or multiple-operator entries, provided such scores are confirmed by receipt at A.R.R.L. headquarters of the individual contest logs from such members.

13. Judges.—All entries will be passed upon by the A.R.R.L. Award Committee, whose decisions will be final. The Committee will rule on appeals and entries as its interpretation of those rules may require.

14. Disqualifications.—Off frequency operation (as confirmed by a single P.C.C. citation or advisory notice) or two A.R.R.L. accredited official observer measurements) will disqualify. Low tone reports in logs shall also be considered by the A.R.R.L. Award Committee as grounds for disqualification.

SUMMARY, 17th A.R.R.L. INTERNATIONAL DX COMPETITION

..... Entry Call..... Country.....

Name..... Address.....

Transmitter Tubes.....

Receiver..... Antenna(e).....
(Logs from foreign countries show number of U.S.A. and Canadian call areas worked.)

Bands	3.5 Mc.	7 Mc.	14 Mc.	27 Mc.	28 Mc.	Total
No. Countries QSOed	1	4	3	8		
Number of Contacts						15

Number of different Countries Worked.....

Number of Hours of Station Operation.....

Asst. Person(s) Name(s) or Call(s).....
45 8 360

..... X equals
(Points) (Multiplier) Final Score

I certify, on my honor, that I have observed all competition rules as well as all regulations established for Amateur Radio in my country, and that my report is correct and true to the best of my belief. I agree to be bound by the decisions of the A.R.R.L. Award Committee.

..... Operator's Signature
* Figure in this box is multiplier.

Sample of summary sheet that must accompany all reports.

LOG, 17th A.R.R.L. INTERNATIONAL DX COMPETITION

Sheet..... of..... Call..... A.R.R.L. Section..... or Country.....

Date & Time	Station Worked	Country	Record of New Countries for Each Band					Serial Numbers		Points
			3.5	7	14	27	28	Sent	Rev'd.	
Feb. 17 0005 GCT	VP9E	Bermuda			1			56373	57080	3
Feb. 18 1300	PA0GN	Netherlands					1	58275	47075	3
1306	G6CL	England					3	58375	46100	3
1315	PA0RA	Netherlands					3	56375	56080	3
2030	LUTAZ	Argentina					3	58375	57750	3
2310	VP9X	Bermuda			1			57500	56050	3
March 17 0030	ZL1MR	New Zealand			2			58500	58075	3
1025	VK2TI	Australia		1				47500	46100	3
1105	VK2RA	Australia		1				46500	45100	3
1421	PA0LQ	Netherlands					3	45375	57100	3
March 18 0925	TF3EA	Iceland			3			57500	57050	3
1245	G2MI	England					3	56375	46125	3
1305	G2KP	England					3	57100	57100	3
1350	G2MI	England					3	57375		1
1430	G5BA	England					3	46375	55100	4
2320	K2ZAW	Canal Zone			4			58500	58500	3

Sample of report form that must be used by foreign c.w. and all phone participants.

SUBSCRIPTIONS

● Please pay your Subscriptions PROMPTLY when due. Failure to do so may result in the loss of valuable issues of "Amateur Radio." High costs of production make it necessary to limit the number of extra copies printed each month.

FEDERAL, QSL, and DIVISIONAL NOTES

Federal President: W. R. GRONOW (VK3JWG); Federal Secretary: G. M. HULL (VK3ZS), Box 2511W, G.P.O., Melbourne.

NEW SOUTH WALES

President.—J. Corbin, VK2YC.
Secretary.—David H. Duff (VK2EO), Box 1734 G.P.O., Sydney.
Meeting Night.—Fifth Friday of each month at Science House, Corner Gloucester and Essex Sts., Sydney.
Divisional Sub-Editor.—A. C. Pearce, VK2AHD, 131A Balmuir Rd., Leichhardt, N.S.W.
Zone Correspondents.—Nth. Coast & Tablelands: J. M. Retallick, VK2XO, Raleigh; Newcastle: H. Wylie, VK4AH, Yale St., Birmingham Gardens, Newcastle; Coalfields and Laka: H. Hawkins, VK2YL, 27 Comfort Ave., Cessnock; Western: W. H. Silt, VK2KH, Cummerajong; South Coast and Southern: R. H. Rayner, VK2DO, 42 Pettit St., Yass; Western Suburbs: A. C. Pearce, VK2AHD, 131A Balmuir Rd., Leichhardt, Eastern Suburbs: D. B. Knock, VK2NO, 43 Yanko Avenue, Waverley; North Sydney: L. D. Cuffe, VK2AM, 191 Military Rd., Mosman; St. George: J. Ackerman, VK2ALG, 33 Park Rd., Carlton; South Sydney: V. H. Wilson, VK2VW, Cr. Wilson St. and Marine Pde., Maroubra.

VICTORIA

President.—G. S. C. Sweeney, VK3OS.
Secretary.—C. Dyer (VK3DY), 19 Collington Ave., Brighton (SA 6226).
Administrative Secretary.—Mrs. S. May, Law Court Chambers, 191 Queen St., Melbourne, C.I.
Meeting Night.—First Wednesday of each month at the Radio School, Melbourne Technical College.
Zone Correspondents.—Western: C. C. Waring, VK3YJ, 15 St. St., Southwell; South Western: R. R. R. VK3AKL, Killigrew, Westmore; North Eastern: T. K. Tennant, 18 Harold St., Shepparton; Far North Western: M. Fells, 191 Arden Ave., Mildura; Eastern: J. K. Kell, VK3AKR, Timbarna; North Western: C. Case, VK3ACE, Cumming Ave., Birchb.

FEDERAL

ACTION TAKEN ON AGENDA ITEMS

During the year 1959 Federal Executive took action on the forty-two agenda items and the twelve general business items arising from the Federal Convention held in the rooms of the Victorian Division of the Institute during Easter.
The results of discussions between Federal Executive and the Postmaster-General's Department on the relevant agenda items were published in the Federal notes in the December issue of "A.R." While we were not successful in obtaining the Department's agreement to all of our requests, we did receive a very good hearing from them and we feel that our transmitting members will appreciate the co-operation of the Department with respect to those of the agenda items on which they succeeded in our requests.
The action taken on the balance of the aforementioned agenda and general business items are listed for your interest.

Agenda Items

Agenda Item 1: Published in "Amateur Radio," June, 1959.
A.I. 3: Overprint spares when called for.
A.I. 4: Awaiting reply from the I.A.R.U.
A.I. 5: Motion lost.
A.I. 6: Entered in Federal policy book; copy forwarded to N.Z.A.R.T.; copy filed for the Federal Convention Committee.
A.I. 7: As per agenda item 6.
A.I. 8: As per agenda item 6.
A.I. 9: Rules amended and included in rules for National Field Day Contest published in November "A.R."
A.I. 10: Awaiting reply from the I.A.R.U.
A.I. 11: Decision published in "A.R." June, 1959, and the N.Z.A.R.T. informed.
A.I. 11a: Motion lost.
A.I. 12: Withdrawn by Queensland delegate at Convention.
A.I. 13: Motion lost.
A.I. 14: 1959 R.D. Rules confirmed to this item.
A.I. 15: Rules published in June "A.R." Divisions advised to fully publicise over Divisional Stations and at meetings. Rules amended as per item 9.
A.I. 16: Awaiting reply from the I.A.R.U.
A.I. 17: Action complete Convention.
A.I. 18: Entered in Federal policy book.

WI BROADCASTS

All Amateurs are urged to keep these frequencies clear during, and for a period of 15 minutes after, the official Broadcast.

VK2WL—Sundays, 1100 hours EST, 7196 Kc. and 2000 hours EST 50 and 144 Mc. No frequency checks available from VK2WL Intra-State working frequency, 7175 Kc.

VK3JW—Sundays, 1100 hours EST, simultaneously on 3580 and 7196 Kc. and re-broadcast on 50 and 144 Mc. bands. Intra-State working frequency 7185 Kc. Individual frequency checks of Amateur Stations given when VK3JW is on the air.

VK4WL—Sundays, 0900 hours E.S.T. simultaneously on 3750 Kc., 7196 Kc., 14542 Kc., 52.4 Mc. and 144.138 Mc. Frequency checks are given two nights weekly, and the times are announced during Sunday broadcasts. 7065 Kc. channel is used from 1000 to 1030 hours each Sunday as VK4WL query service to VK4WL.

VK5WL—Sundays, 1000 hours SAST, on 7196 Kc. Frequency checks are given by VK5DW by arrangement only on the 7 and 14 Mc. bands.

VK6WL—Sundays, 0930 hours WAST, on 7196 Kc. No frequency checks available.

VK7WL—Sundays at 1000 hours E.S.T. on 7196 Kc. No frequency checks are available.

SILENT KEY

VK3ET

It is with deep regret that we record the passing of Herman Asmus, VK3ET, on 21st December.

- A.I. 19: Victorian Division advised.
- A.I. 20: Victorian Division advised.
- A.I. 21: Withdrawn by Federal Executive.
- A.I. 21a: To be included as agenda item for 1959 Convention.
- A.I. 22: Published in September "A.R." for vote by Divisions.
- A.I. 23a: Divisions late forwarding specimen forms. Specimen form being drafted at present time.
- A.I. 23b: Final draft being prepared at present time.
- A.I. 23c: Entered in Federal policy book. Note taken of VK6 comments for discussion at later date.
- A.I. 24: Published in September and October "A.R." Vote by Federal Councilors yet to be taken.
- A.I. 24: Copy of minutes forwarded each meeting.
- A.I. 25: Matter still under discussion.
- A.I. 26: Motion lost.

W.I.A. ACTIVITIES CALENDAR

- Feb. 3-4: B.E.R.U. Contest—Phone.
- Feb. 9-11: 17th A.R.R.L. Contest—C.W.
- Feb. 16-18: 17th A.R.R.L. Contest—Phone.
- Feb. 24-25: B.E.R.U. Contest—C.W.
- Feb. 28: Convention Per-Capita due with F.E.; end of Fiscal Year of Divisions.
- March 3-4: B.E.R.U. Contest—C.W.
- Mar. 9-11: 17th A.R.R.L. Contest—C.W.
- Mar. 16-18: 17th A.R.R.L. Contest—Phone.

QUEENSLAND

President.—J. F. Pickles, VK4FP.
Secretary.—W. L. Stevens, VK4TB, Box 628J, G.P.O., Brisbane.
Meeting Night.—Third Friday in each month at the I.R.E. Rooms, Wickham St., Valley.
Divisional Sub-Editor.—Clive J. Cooke, VK4OC, Kurun Street, Chermside, Brisbane.

SOUTH AUSTRALIA

President.—E. A. Barber, VK5MD.
Secretary.—G. M. Bowen, VK5XU, Box 1234K, G.P.O., Adelaide.
Meeting Night.—Second Tuesday of each month at 17 Wymouth St., Adelaide.
Meeting Night.—Third Tuesday of each month, 483 Explanade, Henley Beach.

WESTERN AUSTRALIA

President.—R. W. S. Hugo, VK6KW.
Secretary.—W. E. Coxon, VK6AG, 7 Howard St., Perth.
Meeting Place.—Padbury House, Cr. St. George's Ter. and King St.—Perth.
Meeting Night.—Third Tuesday of each month.
Divisional Sub-Editor.—Alec A. Smith, VK6AS, 75 Weston St., Carlisle, Western Australia.

TASMANIA

President.—J. Brown, VK7BJ.
Secretary.—R. D. O'May, VK7OM, Box 371B, G.P.O., Hobart.
Meeting Night.—First Wednesday of each month at the Photographic Society's Rooms, 163 Liverpool St., Hobart.
Divisional Sub-Editor.—S. Excell (VK7SJ), 77 Mole Street, Hobart, Tasmania.
Northern Zone Correspondent.—R. H. Kilby, VK7RH, 5 Galvin Street, Launceston.

- A.I. 34: Meeting arranged with Australian Broadcasting Control Board, 14th December, 1959. Assurance given that when manufacturers submit specifications of proposed if channels for television receivers that the Amateur point of view will be given every consideration. Federal Executive at present contacting the R.M.A.
- A.I. 37: Motion lost.
- A.I. 38: Item withdrawn by Victorian delegate.
- A.I. 39: Entered in Federal policy book. Published in June "A.R."
- A.I. 40: Federal Executive discussing proposed emergency signals at present time. Request for suggestions in December "A.R." brought reply from only one Division. Decisions will be published in early issue of the magazine.
- A.I. 41: Published in June and July "A.R."
- A.I. 42: Decision published in July "A.R."

General Business Items

- General Business Item 1: Published in September and October "A.R." Vote of Federal Councilors yet to be taken.
- G.B.I. 2: Discussed and determined at Convention.
- G.B.I. 3: Copies complete with amendments arising out of 1959 Convention forwarded to each Federal Councilor.
- G.B.I. 4: Motion withdrawn.
- G.B.I. 5: Discussed at Convention.
- G.B.I. 6: All Divisions signalled. N.S.W., Victoria and Tasmania only States who have formed committees to date.
- G.B.I. 7: N.Z.A.R.T. reports results not available due to Contest Committee changing operatives and details of results being lost.
- G.B.I. 8: Published in "A.R."
- G.B.I. 9: Entered in Federal policy book and applied to all Federal Contest rules.
- G.B.I. 10: VK2 rules submitted by N.S.W. Division amended to conform with Federal policy arising out of agenda items and published in December "A.R." 1959. N.S.W. Contest Committee running contest on behalf of Federal Executive for 1959.
- G.B.I. 11: R.S.G.B. advised to represent the W.I.A. at short notice. Results of convention published in R.S.G.B. Bulletin. Divisional Councilors requested to convey findings to members where applicable to VK interests.
- G.B.I. 12: No action required. Councilors in possession of copies of Federal Convention minutes.

CONSULT YOUR DIVISIONAL COUNCILLOR

Federal Executive desire to stress to members the importance of speaking through their Divisional Councillor to Federal Executive on matters concerning requests to the Postmaster-General's Department. Of recent date it has been brought to the notice of Federal Executive that members have written direct to the Department, thereby embarrassing relationships between the Department and the Wireless Institute as a whole. Please play the game!

FORWARDING ADDRESS FOR CERTIFICATES

To avoid the necessary delay involved in forwarding cards claiming DX C.C. and W.A.S. 50 Mc. members are again requested to forward their verification cards DIRECT to the Federal DX C.C. Manager, G. I. Morris, Esq., 50 Eighth Street, Parkdale, Victoria.

R.A.A.F. ACTIVE RESERVE

In the January issue of "A.R." Federal Executive published details of the R.A.A.F. Active Reserve for the interest of ex-service Amateurs and Amateurs generally, who may be interested in joining this branch of the service. Radio and electronic equipment plays a major part in modern defence, hence it is in this field that the licensed Amateur or interested newcomer can take an active part in the event of a national emergency.

We hope—everybody hopes—there will never be another national emergency, but at the same time we must be prepared to take our part if such an event did take place. In this regard, we, as a body of technically trained men in the electronic field, could render immediate national assistance—more so if we were familiar with the type of equipment used for defence. The R.A.A.F. have offered us this opportunity in the formation of an "Active Reserve" which makes it possible for us to study the maintenance and operation of this modern defence equipment under actual operating conditions, and further, as members of the Royal Australian Air Force.

We are not called upon to enlist full-time in the Service, although we can if we would like to choose this mode of living as a career. We are not even obliged to attend for training for any definite period; we can attend the appropriate Air Force establishment when we have a few spare hours, days, or weeks available to us. We can expect to be paid for the time we spend under training up

to, and including, 28 days, at the normal R.A.A.F. rates of pay. If, for our own interest, we would like to spend time there in excess of the 28 paid days we can do so without pay—for instance, odd week-ends when we may have no other arrangements to fulfil.

We must not lose sight of the fact, too, that we are not obliged to train ourselves in the electronic field if we do not desire to do so; under the R.A.A.F. Active Reserve scheme we can train ourselves in any other field encompassed by the activities of the Royal Australian Air Force. This means we can apply our normal daily work knowledge under service conditions, if we feel that way inclined.

If a national emergency occurred many of us would be called up for training anyway, so let us give due consideration to this opportunity and train ourselves for an immediate appointment in the R.A.A.F. where we can use our technical knowledge to the best advantage of our country if necessary.

Further and more complete details of the Active Reserve can be obtained from the following staff officers in charge of Reserve Training:—

Squadron Leader Foote, Staff Officer, Radio, North Eastern Area Hqrs., TOWNSVILLE, QLD.

Squadron Leader C. Steel, Staff Officer, Radio, Southern Area Hqrs., Albert Park Barracks, MELBOURNE, S.C.

Squadron Leader S. J. Nichol, A.T.C., HOBART, TASMANIA.

Flight Lieutenant R. J. Shadforth, Staff Officer, Radio, Western Area Hqrs., PEARCE, W.A.

Flight Lieutenant A. F. Crilly, Staff Officer, Radio, Eastern Area Hqrs., PENRITH, N.S.W.

Flight Lieutenant R. B. Cocks, No. 84 Squadron, MALLALA, S.A.

These officers will be only too pleased to assist members of the Wireless Institute of Australia in obtaining further details of this Active Reserve scheme. Any members who may have made up their minds to join the Reserve can approach the following recruiting offices for enlistment:—

New South Wales: R.A.A.F. Recruiting Office, Room 9, Floor 6, Dymock's Building, 426 George St., Sydney. Phone: MA 6041.

Victoria: R.A.A.F. Recruiting Office, Reliance House, 301-311 Flinders Lane, Melbourne, C.I. Phone: MB 2018.

Queensland: R.A.A.F. Recruiting Office, Scottish Union House, 127 Eagle St., Brisbane. Phone: B 6277.

South Australia: R.A.A.F. Recruiting Office, Cresco Buildings, North Terrace, Adelaide. Phone: Central 7747.
Western Australia: R.A.A.F. Recruiting Office, A.N.A. House, St. George's Terrace, Perth. Phone: B 7259.
Tasmania: R.A.A.F. Recruiting Office, Angelsea Barracks, Davey St., Hobart. Phone: Hobart 7153.

You are under no obligation to enlist so if you are interested in the possibilities of the knowledge you can gain do not hesitate to approach the Recruiting Officer in your State and have a friendly chat with him.

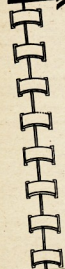


Remember the Boy Scouts' Motto: "Be Prepared."

LIST OF AMATEUR RADIO STATIONS IN THE PHILIPPINES AS AT 1st MAY, 1960

The Secretary (Elpidio G. De Castro) of the Philippine Amateur Radio Association, 931 R. Hidalgo Street, Quiapo, Manila, has forwarded the following list of DU stations licensed by the Department of Commerce and Industry, Radio Control Division, Manila.

DU1A1—Alejandro Legarda, 181 San Rafael St., San Miguel, Manila.
DU1A2—Antonio Pertierra, Nasugbu, Batangas.
DU1A3—Victor V. Palenoc, 418 Santa Mesa Boulevard, Manila.
DU1A4—Alfredo Santos, Nasugbu, Batangas.
DU1A5—Gregorio S. Orbeta, 1370 Int. 1 San Andres St., Malolos, Manila.
DU1C—Elosoo M. Claro, 202 Requesenes, Sta. Cruz, Manila.
DU1C1—Tranquilino Navarro (Trustee), 544 P. Paredes, Manila.
DU1D—Pedro A. Aguinaldo, Jr., 2357 Oroquieta Street, Manila.
DU1DR—Hilario Escudero, 339 Vision, Sta. Cruz, Manila.
DU1FC—Fred A. Curino, 1496 Pepin Street, Sampaloc, Manila.
DU1FH—Luis A. Fernandez, 1 First Street, New Manila, Quezon City.
DU1FT—Arturo del Pan (Trustee), P.E.A.T.I. Institute of Technology, Paterno Building, Manila.
DU1FM—Felix Martinez, Tugstog, Malabon, Rizal.
DU1GT—Gregorio Trinidad, 50 Park Avenue, Rizal City.
DU1JH—Juan A. Herrera, Jr., 25 Hyacinth St., Quezon City.

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- TOLERANCE OF CAPACITANCE: $\pm 20\%$ at 28°C.
- Test conditions: 130 Kc/s. 10 V. R.M.S.
- INSULATION RESISTANCE: Greater than 5,000 Megohms at 1,500 V. D.C. at temperatures up to 100°C.
- WORKING VOLTAGE: 500 V. D.C. or 250 V. R.M.S. A.C. (20 cps.-60 cps.).
- TEST VOLTAGE: 1,500 V. D.C.
- DIELECTRIC: Unilator K.3000.

TYPE	CAPACITANCE	DIA. OF WIRES	LENGTH (L.)
CTH 310	680 pF	0.18"	0.4"
CTH 310	1,000 pF	0.18"	0.4"
CTH 310	1,500 pF	0.18"	0.4"
CTH 310	2,200 pF	0.18"	0.4"
CTH 315	3,300 pF	0.18"	0.6"
CTH 315	4,700 pF	0.18"	0.6"
CTH 422	6,800 pF	0.22"	0.9"
CTH 422	10,000 pF	0.22"	0.9"

- FINISH: Dimensions shown are for Finish "C." For Finish "A" increase overall dimensions by 0.080".
- MARKING: Capacitance—Red ink on white body.

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DU1JH—Jorge R. Illenberger, 6 Domingo Santiago Street, Sampaloc, Manila.
 DU1JL—Joquin Santarromana, 36 Bernabe St., Rial City.
 DU1MO—Miguel J. A. Contreras, Binkayan, Kawit, Cavite.
 DU1NI—Nunión Lim, 2396 Herran St., Manila.
 DU1R1—Rafael B. De Castro, 931 R. Hidalgo Street, Manila.
 DU1TR—Teodoro Kalaw, Jr., 54 Valenzuela St., Rial City.
 DU1TF—Antonio S. de la Paz, Bo. Kapasina, Pasig, Rizal.
 DU1VP—Venancio Pineda, 87 Blumentrit St., Marikina, Marikina City.
 DU1VVS—Jesus F. Escalante, 136 P. Burgos St., Cavite City.
 DU1WP—Wenceslao Pangan, Central Asucara Don Pedro, Nasugbu, Batangas.
 DU1AR—Dr. Alejandro Legarda, Evangelista Apartments, Baguio, Mountain Province.
 DU6GR—Delfin Arbes (Trustee), Cebu City.
 DU6LE—Leandro Argueta, P. Piazola, Cebu, Iloilo City.
 DU6DA—Dionisio Argueta, Jr., Corner Hervas y Zamora Sts., Plaza Libertad, Iloilo City.
 DU6IV—Israel Vito, Corner Zamora & Hervas Sts., Iloilo City.
 DU6JJ—Julio Illenberger, Southern Institute and Radio Electronics, P.O. Box 392, Iloilo City.
 DU7AHS—Saulo de O. Ocol (Trustee), Abellana High School, Iloilo City.
 DU7AJ—Antonio Jayme, 43 Lacson St., Bacolod City.
 DU7CT—Rolando C. Bonusan (Trustee), Cebu Institute of Technology, Cebu City.
 DU7EA—Eusebio L. Amante, Silliman University, Dumaguete City.
 DU7EC—Enrique del Castillo, 89 San Sebastian St., Bacolod City.
 DU7ER—Enrique Rodriguez, Corner P. del Rosario y Pelaez Sts., Cebu City.
 DU7IM—Ignacio Montenegro, Bala, Oriental Negros.
 DU7JO—Justino Ongchua, Villaleros St., Cotabato, Cotabato.

CHANGE OF ADDRESS

W.I.A. members are requested to promptly notify any change of address to their Divisional Secretary, not direct to "Amateur Radio."

FEDERAL QSL BUREAU

RAY JONES, VK3RJ, MANAGER

The address of the Israel Amateur Radio Club is Box 4099, Tel Aviv, Israel.
 Jack Elliott, ZL6CQ, advises that the itinerary of his proposed trip to Australia in 1951 is now taking shape and he expects to arrive here about March next. It is many years since Jack last visited this country and old friends will be glad to meet him again. Jack is extremely active on 14 Mc. c.w.

Max Ripper, VK3RJ, is again back on the air with temporary rig after an absence of a few days. Due to the continued breaking down of power transistors, a new tranny for the 810 is expected shortly and Max hopes for much longer life from this unit during the period of the oil. Max has re-built his SX28.

The QTH of ZL6CQ is 401518 Sgt. Tyler, F. W., 2 Wireless Regiment, Royal Signals, M.E.L.F.S. Victorian Bush. He is a keen amateur and was the sudden death of Herman Ames, VK3ET, on 21st December. Colleagues at the C.T.O. Melbourne were deeply shocked by Herman's death as he was on duty up to seven hours before his death. Few Hams were possessed of the talents and ability that Herman displayed. Among his many qualifications were those of a first-class photographer in all its ramifications, a telegraphist of outstanding ability, a deep knowledge of radio, and in his younger days, a tennis player well above the average. In his early life, Herman spent many years in China and travelled extensively in that country. Amateur Radio is the poorer by his passing.

W.A. and W.R.E. recommendations made during 1950 were as follows: W.B.E.—2WB, 4RW and SRK; W.A.G.—2YL, 2AN, 2VW, 3ARV, 3PS, 3XK, 3KU; Phone: 2AGD, 2AMT, 2TH, 3AGV, 3ADF, 4FD, 4ZB, 5MS, 6PS, 6AS, 9BL and 6ND.

The FR8 gang have decided to establish a QSL Bureau for the islands with address as Box 104, Noumea, New Caledonia.

Andre Baillet, F7BAA, of Wallis Islands, has scarcely found time as yet for Ham Radio, his only contact so far being on 14 Mc. with F7BAA. Possibly after the loneliness of the tropic islands over-takes Andre he will become more active.

Eric Treilcock, B.E.R.S.195, with his usual bunch of interesting news, corrects the QTH of VRIC as published in these notes to E. J. Wietor, U.S.C.G.L.T.S., Unit 84, Navy 824, F.P.O., San Francisco, Calif. Eric claims to have received 218 countries with 190 of them confirmed. Latest confirmations received are OY3IGO and AO4YN, the latter after four years. Nice ones heard during December in the early mornings are YL1DF Kuwait, and ZS1D.

A circular letter dated 7th December, 1950, to hand from the C.A.V.—the national society of the Czechoslovakian Amateurs—giving reasons for the withdrawal of that body from membership in the I.A.R.U. According to the circular the C.A.V. forwarded in July, 1950, an appeal to the I.A.R.U. requesting a vote to be taken by all member societies as to whether they would associate themselves with the Stockholm Peace Appeal of the World Council of Partisans of Peace. The appeal was rejected by the I.A.R.U. This is the main reason for the withdrawal of the C.A.V. from the I.A.R.U.

The new address of the Elre QSL Bureau is 97 St. Stephens Green, Dublin, Republic of Ireland. A few cards from VK1RF have come to hand. This about his address is: R. J. Frost, 3 Nevorie Crescent, Maroubra, N.S.W.

NEW SOUTH WALES

PROGRAMME FOR NORTH COAST ZONE EASTER CONVENTION

Friday, 23rd March, 1951

Registration at "Do Me" all day.
 Hotel Bookings: Deposit £1/10/- per person, to be forwarded with written application to Ocean View Hotel. This accommodation is reserved for Hams who are bringing their wives.

Shacks: Available for bunking purposes only. Bring your own blankets. All meals to be obtained in the town refreshment rooms. If you have a caravan or camp gear, bring it along and insure a good holiday.

Saturday, 24th March, 1951

10 a.m. to 1 p.m.: Register at the "Do Me" and receive Lucky Numbers. Registration Fee, 10/-.
 You can register on Friday and so help the committee. Ladies' lucky number prize, beautiful hand-crocheted Duchess set, donated by Joan Hall. Gent's lucky number prize, 500 QSL Cards, donated by Ern Ashley.

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	PRICE (inc. Sales Tax)
General Electric NE51 Miniature BC fitting Neon Glow Lamps, 1 watt	2/3 each
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Bulgin 8265 two-way Switches (bridge for S.P.D.T.)	6/1 each
Bulgin P28/P29 two-pin Round Cable Connectors (male and female sections)	6/9 each
Bulgin T21 Test Prods with Plated Tips	7/6 each
Bulgin T1 Insulated Lining Up Tool	2/- each
Bulgin D400 Series Panel Lamps—Red, Green, Blue, Amber	3/11 each
Bulgin D110 D.P.D. Panel Lamps—Red, Green, Blue, Amber	5/9 each
Bulgin D300 Series Panel Lamps—Red, Green, Blue, Amber (front loading)	5/9 each
Bulgin D600 Signal Lamp Lens Bushes—Red, Green, Blue, Amber	3/6 each
Bulgin 8206 two by nine-way Weather Switches, Contact Rating 1 Amp.	8/6 each
Bulgin L13 Weather Sunk Switches ON OFF Plates for Toggle Switches	1/- each
Bulgin P161 two-pin Round Cord Connectors	8/6 each
Bulgin IVC-23 47,000 ohm 3 watt W.W. potentiometers insulated for 500 volts	7/9 each
Ceramic Sockets for 832 Valves (Only a few now available.)	
Eric Resistors in preferred values	15/6 each
Painton No. 500470 six-way Jones type Female Cable Sockets	10d. each
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B.H. Shaded Pole 9 watt Output induction Motors. Ideal for driving Wire and Tape Recorders, Recording Turntables, etc.	90/- each
Belling & Lee Twin Co-ax Cable Connectors (line to chassis), L625P/S	17/8 each
Belling & Lee L613 3 m.m. "O-Z" Mini-Contact Pins for Plug-in Coils (fit standard Banana Sockets)	1/4 each
Belling & Lee Multi-Connectors to suit I.F.F. Units. Write for details regarding number of Pins and Male or Female Connection.	
Belling & Lee L1055 General Purpose Fuses similar in construction to standard car Fuses. Available in 50, 100, 250, 500 Ma.; 1, 2, 5, 10 and 15 Amp. 11d. each	
L356 Panel Fuse Holders for above, Front Loading	5/4 each
L530 Open Fuse Holders for sub-chassis mounting	1/6 each
L048 L3 Safety Fuse Holders, Front Loading	7/- each
L1033/C4 Twin Safety Fuse Holders, Panel Mounting	9/9 each
Belling & Lee Catalogue available on Request. Please include 2d. Postage.	
Labgear Wide-Band Couplers for 3, 5, 7, 14, 28 and 56 Mc. Bands	41/- each
Belling & Lee 72 ohm Twin Flat Line, type L336	per 65 ft. coil 18/9 each
Belling & Lee 70 ohm Co-ax Cable, type L600	2/- yard
Belling & Lee 50 ohm Twin Shield Co-axial Cable, type L1221	2/6 yard
Belling & Lee type L333 "T" Insulators for Centre Fed Dipoles	6/3 each
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Wrinkle Finished Cast Stands for Microphones, threaded 5/8 inch, 26 T.P.I.	8/9 each
Zephyr type 360 crystal Microphones 40-16,000 c.p.s., output impedance 50 ohms (or any other impedance), output level —29 DB below 1 milliwatt with a sound pressure of 1 Bar into a load of 50 ohms. Beautifully finished in chrome	27/3/9 each
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CRYSTALS, as illustrated, 40 or 80 mx., AT or BT cut. Accuracy 0.02% of your specified frequency, £2/12/6 each.

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A.W.A. Split Stator Transmitting Condensers, high voltage, £2/15/- each.

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Amateur Radio, 9/-; Electronic Engineering, £1/12/6; Radio and Hobbies, 12/-; Short-wave Magazine, £1/7/6; Wireless World, £1/14/-; Wireless Engineer, £2.

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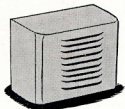
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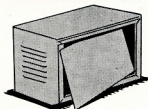
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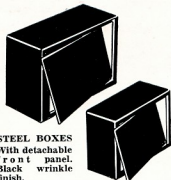
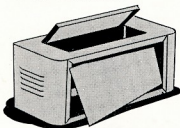
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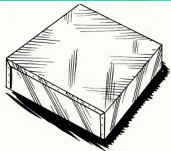


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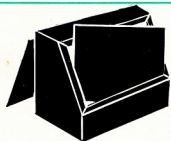


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